

A Project of

The Sacramento Valley

Water Management Agreement

GCID Flow Measurement Devices and Canal Automation



PREPARED FOR

PROPOSITION 13
AGRICULTURAL FEASIBILITY STUDY PROGRAM

March 1, 2002

Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
A. Project Information Form

1. Applying for (select one): ☐ (a) Prop 13 Urban Water Conservation Capital Outlay Grant
☒ (b) Prop 13 Agricultural Water Conservation Capital Outlay Feasibility Study Grant
☐ (c) DWR Water Use Efficiency Project
2. Principal applicant (Organization or affiliation): Glenn-Colusa Irrigation District
3. Project Title: Glenn-Colusa Irrigation District (GCID or District)
Flow Measurement Devices in Main Canal, Lateral
System, and Drain Outflow Points/Existing
Automation Program to Address Quantifiable
Objectives 13, 20, 27, 30, and 35
4. Person authorized to sign and submit proposal:
- | | |
|-----------------|----------------------------------------------------|
| Name, title | <u>O.L "Van" Tenney, General</u>
<u>Manager</u> |
| Mailing address | <u>P.O. Box 150, Willows, CA</u>
<u>95988</u> |
| Telephone | <u>530/934-8881</u> |
| Fax. | <u>530/934-3287</u> |
| E-mail | <u>vtenney@gcid.net</u> |
5. Contact person (if different):
- | | |
|------------------|--|
| Name, title. | |
| Mailing address. | |
| Telephone | |
| Fax. | |
| E-mail | |
6. Funds requested (dollar amount): \$100,000
7. Applicant funds pledged (dollar amount): \$0
8. Total project costs (dollar amount): \$10,200,000
9. Estimated total quantifiable project benefits (dollar amount): To be determined by initial
project stages.
- Percentage of benefit to be accrued by applicant: _____

Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
A. Project Information Form (continued)

Percentage of benefit to be accrued by CALFED
or others:

Project is a water efficiency
project which contributes 100%
to CALFED goals

10. Estimated annual amount of water to be saved (acre-feet): To be determined by initial
project stages, but is estimated
up to 40,000 ac-ft/yr during life of
project.

Estimated total amount of water to be saved (acre-feet): _____

Over ____ years

Estimated benefits to be realized in terms of water
quality, instream flow, other: _____

11. Duration of project (month/year to month/year): October 2002 to October 2004

12. State Assembly District where the project is to be
conducted: Assembly District 2

13. State Senate District where the project is to be conducted: State Senate District 4

14. Congressional district(s) where the project is to be
conducted: Congressional District 3

15. County where the project is to be conducted: Glenn and Colusa Counties

16. Date most recent Urban Water Management Plan
submitted to the Department of Water Resources: _____

17. Type of applicant (select one):
Prop 13 Urban Grants and Prop 13
Agricultural Feasibility Study Grants:

- ☐ (a) city
☐ (b) county
☐ (c) city and county
☐ (d) joint power authority
☒ (e) other political subdivision of the State,
including public water district
☐ (f) incorporated mutual water company

DWR WUE Projects: the above
entities (a) through (f) or:

- ☐ (g) investor-owned utility
☐ (h) non-profit organization
☐ (i) tribe
☐ (j) university
☐ (k) state agency
☐ (l) federal agency

18. Project focus:

- ☒ (a) agricultural
☐ (b) urban

**Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
A. Project Information Form (continued)**

19. Project type (select one):
Prop 13 Urban Grant or Prop 13
Agricultural Feasibility Study Grant
capital outlay project related to:

- ☐ (a) implementation of Urban Best Management Practices
- ☐ (b) implementation of Agricultural Efficient Water Management Practices
- ☒ (c) implementation of Quantifiable Objectives (include QO number(s))

13, 20, 27, 30, and 35

- ☐ (d) other (specify)

DWR WUE Project related to:

- ☐ (e) implementation of Urban Best Management Practices
- ☐ (f) implementation of Agricultural Efficient Water Management Practices
- ☐ (g) implementation of Quantifiable Objectives (include QO number(s))
- ☐ (h) innovative projects (initial investigation of new technologies, methodologies, approaches, or institutional frameworks)
- ☐ (i) research or pilot projects
- ☐ (j) education or public information programs
- ☐ (k) other (specify)

20. Do the actions in this proposal involve physical changes in land use, or potential future changes in land use?

- ☐ (a) yes
- ☒ (b) no

If yes, the applicant must complete the CALFED If yes, the applicant must complete the CAL PSP Land Use Checklist found at http://calfed.water.ca.gov/environmental_docs.htm and submit it with the proposal.


**Consolidated Water Use Efficiency 2002 PSP
Proposal Part One:
B. Signature Page**

By signing below, the official declares the following:

The truthfulness of all representations in the proposal;

The individual signing the form is authorized to submit the proposal on behalf of the applicant; and

The individual signing the form read and understood the conflict of interest and confidentiality section and waives any and all rights to privacy and confidentiality of the proposal on behalf of the applicant.


Signature

O.L. "Van" Tenney, General Manager
Name and title

3-1-2002
Date

Proposal Part Two

Project Summary

This project, as a project of the Sacramento Valley Water Management Agreement related to the resolution of Phase 8 of the State Water Resources Control Board (SWRCB) Bay-Delta Water Rights Hearings, proposes to continue GCID's commitment to increase water use efficiency by evaluating and constructing 30 flow measurement devices with telemetry throughout the GCID conveyance system to continuously monitor system flows and outflows telemetrically, thereby improving water management within the District and conceivably throughout the sub-basin. Eighteen of the sites would be dedicated to the measurement of Main Canal, lateral, and drainage flows. The remaining 12 sites would be dedicated measurement sites for system outflows. The benefits of the project would be realized immediately upon operation. GCID would be able to record and monitor flows at the up-and-running sites immediately and adjust system operations accordingly.

Further, the District proposes to continue GCID's efforts to automate its Main Canal control structures to increase water use efficiency through reduction of operational spills. GCID has proposed the replacement of four Main Canal check structures and the construction of a tainter gate at the Stony Creek Siphon. The existing Main Canal check structures control the canal head with flashboard structures that are decades old. This proposed project suggests replacing the four check structures on the Main Canal that have yet to be automated: Tuttle Check (Main Canal mile post 21.75), Able Check (Main Canal mile post 48.70), Lurline Creek Check (Main Canal mile post 53.71), and Spring Creek Check (Main Canal mile post 58.06), with radial gate check structures. Figure 1 provides a general layout of the District's boundaries and potential project sites.

This proposal is to secure partial funding through the Proposition 13 Agricultural Feasibility Study Program for the feasibility study (FS) and environmental reconnaissance portion of this project. The expected outcomes of the FS include data collection (water surface elevation data, typical canal dimensions and profile, and typical widths of existing canal right-of-way and adjacent open space to evaluate project feasibility; cursory-level geotechnical/hydrogeologic field reviews; aerial photo and mapping coverage at a scale appropriate for conceptual design and FS report drawings), hydrologic evaluations (to determine magnitude of achievable water conservation by constructing a simple water balance indicating estimates of canal deliveries, alternatives analysis, conceptual design, identification of environmental documentation and permitting requirements, order-of-magnitude cost estimate for improvements, and Feasibility Report.

Increased system flow measurement and automation of the Main Canal are expected to yield water supply, water management, water quality, and environmental benefits. Through improved management of existing supplies, water supply benefits of this estimated \$10.2 million project potentially could be on the order of 40,000 acre-feet per year (ac-ft/yr).

A. Scope of Work: Relevance and Importance

1. Nature, Scope, and Objectives

One of CALFED's target goals, highlighted in Detail 13 of the Quantifiable Objectives, is to reduce critical- or dry-period diversions at the Glenn-Colusa Irrigation District (GCID) intake from the Sacramento River by 951.0 acre feet. GCID shares this goal, and supports attainment of this objective through this effort in conjunction with ongoing efforts throughout the District. GCID's primary goals for this project are to (1) develop a project to reduce the District's diversion from the Sacramento River during March, April, and May; (2) provide flexibility to increase the District's water supply for beneficial uses; and (3) provide instream flow to improve aquatic ecosystem conditions. These primary goals would be achieved by reducing instream diversions from the Sacramento River and Delta during critical fish migration periods and making more efficient use of the District's drainage flows both within and outside the District. This portion of the project is a study to enable conceptual design of Main Canal check structures and flow measurement devices in addition to determining of optimal flow measurement locations.

This project will address Quantifiable Objectives 13, 20, 27, 30, and 35 by providing flow to improve aquatic ecosystem conditions and by providing long-term diversion flexibility to increase the water supply for beneficial uses. The project objective seeks to optimize and integrate water supplies and reduce annual Sacramento River diversions and peak diversions through more efficient use of the surface supply and reducing drainwater quantities. This would result in a more secure, reliable, and flexible water supply for the GCID and neighboring districts. The project would reduce diversion from the Sacramento River (CALFED Quantifiable Objectives 13, 20, and 30) and provide long-term diversion flexibility to increase the water supply for beneficial uses (CALFED Quantifiable Objectives 25 and 35).

The primary objectives include improving system efficiency, resulting in a more secure water supply, which would improve water quality to benefit aquatic species and habitats. Project water quality improvements would directly benefit anadromous fish and other aquatic species. Regulating Colusa Basin Drain (CBD) pulse flows, which act as attraction flows to anadromous fish, would reduce entrainment of potential adult spawners into CBD.

2. Critical Local, Regional, Bay-Delta, State, or Federal Water Issues

The key CALFED issue is to optimize and integrate all water supplies to reduce annual Sacramento River diversions and peak diversions during March, April, May, October, November, and December through surface supply, and drainwater. GCID wants to optimize its available water supply and improve water quality to promote CALFED goals of fish, wildlife, and habitat enhancement and restoration. GCID delivers water to 175,000 acres in Glenn and Colusa counties, including 20,000 acres of wildlife refuges.

The proposed project was identified in the Short-term Workplan developed as part of the Sacramento Valley Water Management Agreement (Agreement). This unprecedented agreement was developed by Sacramento Valley water users, export interests, the California Department of Water Resources (DWR), and U.S. Bureau of Reclamation (USBR) as an

alternative to a potentially contentious process within Phase 8 of the State Water Resources Control Board (SWRCB) Bay-Delta Water Rights Hearings. The intent of the Agreement is to establish a framework to meet water supply, water quality, and environmental needs through a cooperative project development process. Each of the water system improvement projects evaluated under the Agreement, including the project described below, would provide benefits toward achieving at least one of four quantifiable objectives:

- (1) Provide flow to improve aquatic ecosystem conditions
- (2) Decrease nonproductive evapotranspiration (ET)
- (3) Provide long-term diversion flexibility to increase the water supply for beneficial uses
- (4) Reduce salinity to enhance and maintain beneficial uses of water.

GCID has long been involved in state and federal programs that promote CALFED objectives and has support from a variety of local agencies, landowners, and other stakeholder groups. The fish screen projects and refuge water supply projects, developed in cooperation with state and federal agencies with state and federal funding, directly benefit anadromous fish and provide wetlands enhancement. Other CALFED-compatible programs that GCID participates in include the Stony Creek Task Force, BDAC, SB 1086, Sacramento River Watershed Planning, Inland Surface Water Plan, AB 3616, AB 3030, the potential Glenn County Water Management Model and Conservation Plan, and Tehama-Colusa Canal Authority (TCCA) supply proposals. All of these programs have the ability to provide information that could contribute to the proposed project. This information could contribute to developing the BWMP, the Agreement, and eventually a conjunctive use plan. Potential project supporters and collaborators include California Department of Fish and Game (CDFG), U.S. Fish and Wildlife Service (USFWS), Reclamation, Regional Water Quality Control Board (RWQCB), DWR, TCCA, Orland Unit Water Users' Association, Glenn and Colusa counties, Reclamation District 2047, Princeton-Codora-Glenn Irrigation District, Provident Irrigation District, Maxwell Irrigation District, and other basin water users.

B. Scope of Work: Technical/Scientific Merit, Feasibility, Monitoring, and Assessment

1. Methods, Procedures, and Facilities

The project will be performed under the following tasks, with Prop 13 funding designated for Task 1.

- Task 1 – Feasibility Study and Conceptual Design
 - Subtask 1a – Data Collection and Coordination with Other Studies
 - Subtask 1b – Develop Mapping
 - Subtask 1c – Modeling
 - Subtask 1d – Develop Project Alternatives
 - Subtask 1e – Evaluate Alternatives
 - Subtask 1f – Prepare Implementation Schedule

- Subtask 1g – Develop Cost Estimates
- Subtask 1h – Legal/Regulatory/Environmental Reconnaissance
- Subtask 1i – Feasibility Report
- Task 2 – Design
 - Subtask 2a – Preliminary Design
 - Subtask 2b – Environmental Documentation
 - Subtask 2c – Final Design
 - Subtask 2d – Permitting
- Task 3 – Construction

Methods: The objectives of this project are to reduce diversion from the Sacramento River (CALFED Quantifiable Objectives 13, 20, and 30) and provide long-term diversion flexibility to increase the water supply for beneficial uses (CALFED Quantifiable Objectives 27 and 35). This project would identify proposed actions and provide a rough estimate of the corresponding contribution towards a quantifiable objective.

The action-specific approach to achieving these goals would be to conceptually develop the four check structures, Stony Creek Tainter Gate, and flow measurement facilities. The proposed feasibility study would be a necessary step in developing these facilities and solidifying site locations. Information that the feasibility study would provide includes the total surface-water supply, including the District's water rights and potentially recaptured peak flows from CBD and identifying environmental permitting requirements. General footprints and locations of the project sites have already been anticipated through similar work throughout GCID's system during such projects as the Refuge Water Supply Improvements.

Procedures: The study portion of the project would evaluate the feasibility and cost effectiveness of various design alternatives. Alternatives would be developed and screened and flexibility and reliability, capital costs, operational scenarios and costs, and institutional issues would be addressed. The feasibility study deliverable will be a technical memorandum compiling all data from the study (including how much additional water supply could be developed/saved and how much surface supply could be freed up in the Sacramento River) and recommending final project components.

Facilities: The various project components would include:

- **Flow Measurement:** Installation of thirty flow measurement devices with telemetry throughout the GCID conveyance system to continuously monitor system flows and outflows telemetrically. Eighteen of the sites would be dedicated to the measurement of Main Canal, lateral, and drainage flows. The remaining 12 sites would be dedicated measurement sites for system outflows. The benefits of the project would be realized immediately upon operation. GCID would be able to record and monitor flows at the up-and-running sites immediately and adjust system operations accordingly.
- **Automated Check Structures:** Replacement of four Main Canal check structures and the construction of a tainter gate at the Stony Creek Siphon. The existing Main Canal check structures control the canal head with flashboard structures that are decades old.

This proposed project involves replacing the four check structures on the Main Canal that have yet to be automated: Tuttle Check (Main Canal mile post 21.75), Able Check (Main Canal mile post 48.70), Lurline Creek Check (Main Canal mile post 53.71), and Spring Creek Check (Main Canal mile post 58.06), with radial gate check structures.

Technical and Scientific Merit of Approach: Among project objectives are to optimize use of the District's water resources; level CBD peak flows (which would reduce pulse flows that attract and entrain anadromous fish); improve water quality, reduce flows at the MPS at times when juvenile fish are present; and recaptured drainwater.

The project would address portions of a larger watershed management program. The program includes the fish screen, a conservation program, the rice straw decomposition program, the Central Valley Project Improvement Act (CVPIA) Anadromous Fishery Restoration Program (AFRP), and the wildlife refuge year-round water supply conveyance program. The fish screen and refuge conveyance projects used state and federal funding, some of which was authorized under the CVPIA. To date, GCID has committed to cost-share in the \$20 million refuge water supply program and has advanced nearly \$9 million of District funds to the \$70 million fish screen project. Partners in the fish screen project include CDFG, Reclamation, DWR, the U.S. Army Corps of Engineers (Corps), USFWS, and National Marine Fisheries Service (NMFS).

The District participates in the following programs that promote habitat restoration or support other CALFED programs: BWMP, Stony Creek Task Force, SB 1086, Sacramento River Watershed Planning, Inland Surface Water Plan, AB 3616, AB 3030, BDAC, a potential Glenn County Water Management Model and Conservation Plan, and TCCA water supply/storage proposals.

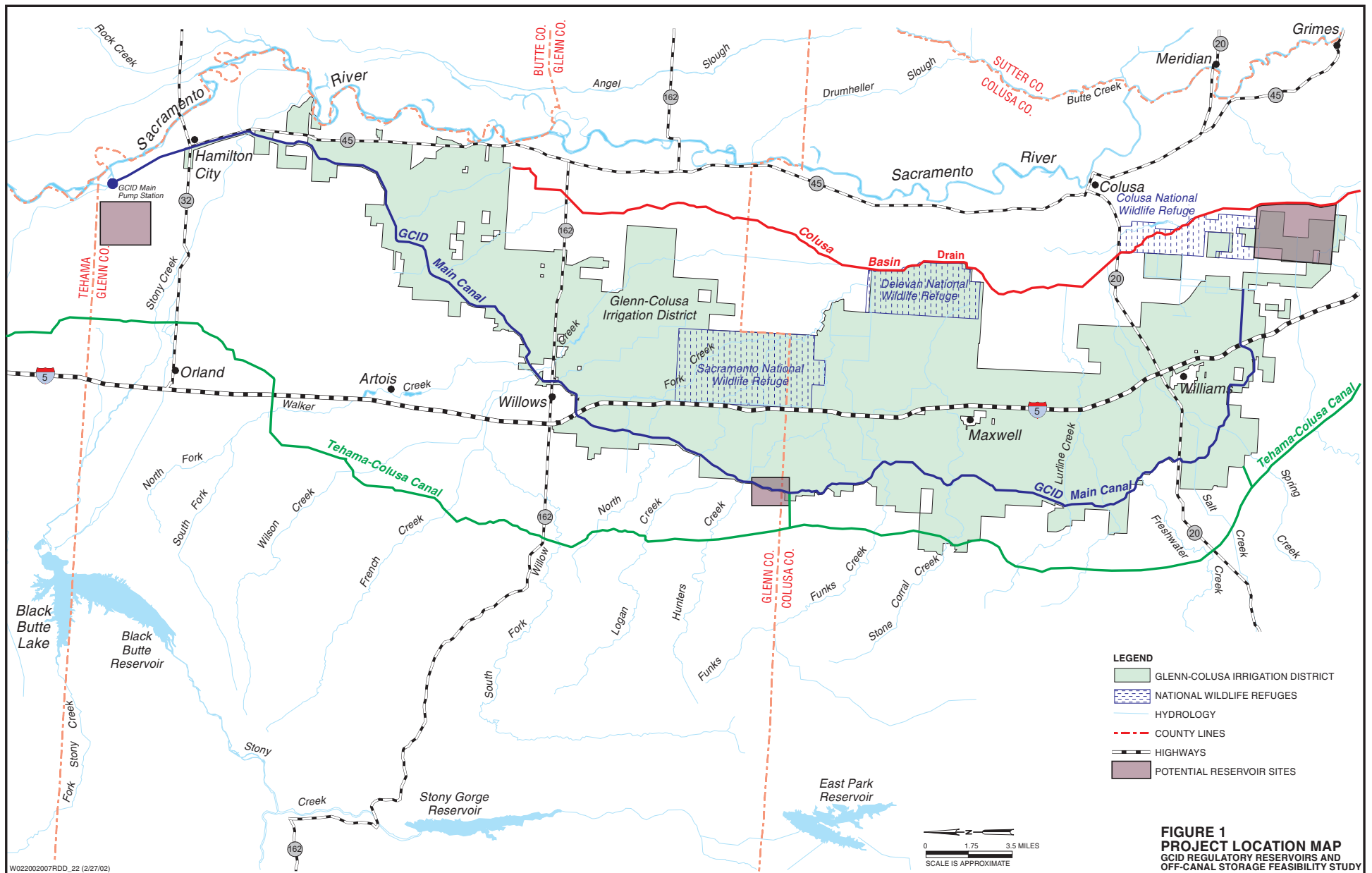
The proposed system improvements, along with the interrelated projects and programs listed above, would contribute to the ability of the District to provide year-round, secure water conveyance to the wildlife refuges and other water users. Completion of the fish screen project enables the District to divert its entire water supply, and the proposed flow measurement and Main Canal Automation project would contribute to optimizing efficiency of the District's system.

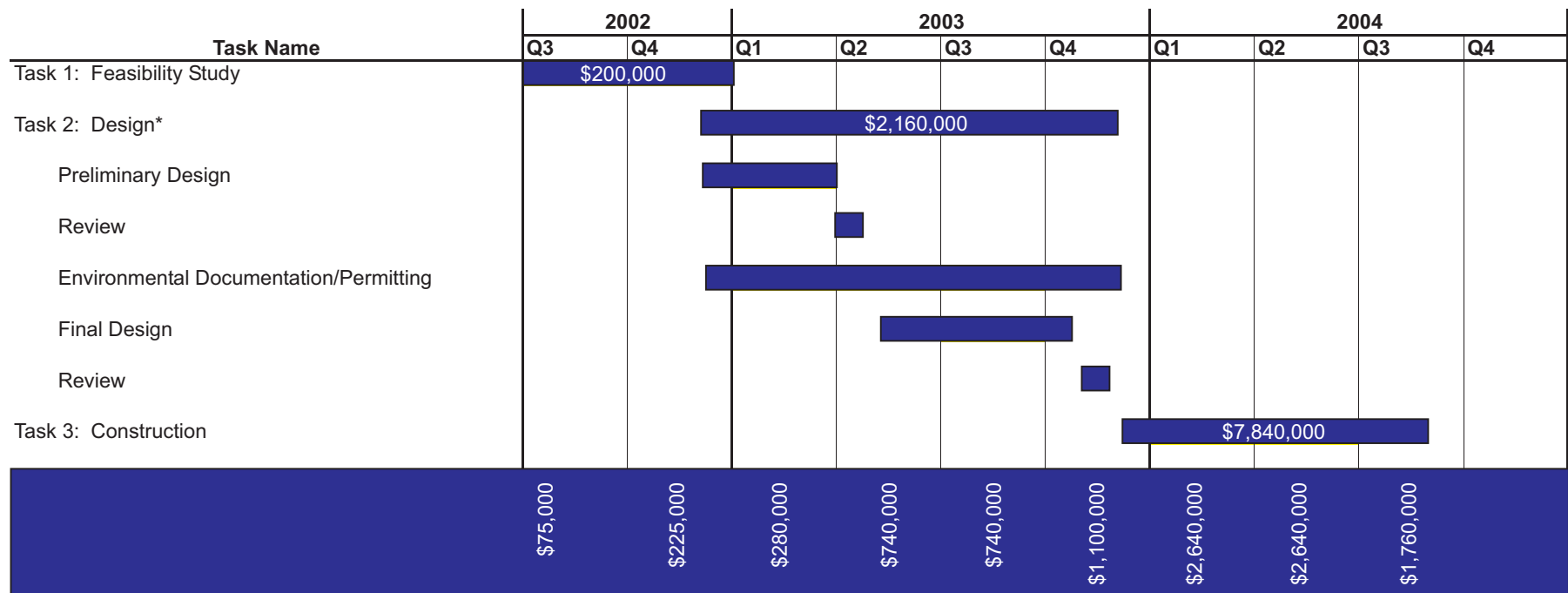
2. Task List and Schedule

The following major steps would be required to implement the project. Each step depends on successful completion of the previous supporting steps and findings that support further actions. Figure 2 shows an assumed implementation schedule based on typical time requirements for each step in a project of this scale.

- **Task 1—Feasibility studies and conceptual design**

This step can begin immediately and is intended to develop the specific project components, general features, operating concepts, and potential benefits. It would also determine the basic engineering and economic feasibility of the project. This step would also help determine the need for other studies such as system modeling. Subtasks will include the following:





*Costs include costs for construction management

FIGURE 2
PRELIMINARY IMPLEMENTATION SCHEDULE
 GCID FLOW MEASUREMENT DEVICES IN MAIN CANAL, LATERAL SYSTEM,
 AND DRAIN OUTFLOW POINTS/EXISTING AUTOMATION PROGRAM

- Subtask 1a - Data Collection and Coordination with Other Studies
- Subtask 1b - Develop Mapping
- Subtask 1c - Modeling
- Subtask 1d - Develop Project Alternatives
- Subtask 1e - Evaluate Alternatives
- Subtask 1f - Prepare Implementation Schedule
- Subtask 1g - Develop Cost Estimates
- Subtask 1h - Legal/Regulatory/Environmental Reconnaissance
- Subtask 1i - Feasibility Report
- **Task 2—Design**
 - **Subtask 2a—Preliminary design**
The preliminary design would involve engineering design of the major facilities to a 30-percent design level. This level of design would include such details as sizes, locations, and footprints of all major facilities. This information would support key implementation steps such as right-of-way acquisition (if required) and permitting and environmental studies.
 - **Subtask 2b—Environmental documentation**
Environmental documentation would be based on the preliminary design and would confirm the potential impacts and required mitigation, if any, for the project. The majority of the project would be within District boundaries and right-of-way. This project is expected to have minimal environmental impact.
 - **Subtask 2c—Final design**
Final design would proceed following the environmental documentation work. This would involve producing engineering drawings, specifications, and other final documents suitable to construct the project facilities. The type of documents and level of design would be based on District procedure, i.e., whether the project would go out to bid or construction would take place through the District.
 - **Subtask 2d—Permitting**
The various permits would be obtained using the final design as the basis for permitting requirements. The permitting process would begin during preliminary design.
- **Task 3—Construction**
Construction would potentially be phased over several years, given the number of facilities within the project.

Bar Chart Schedule: The proposed project schedule and quarterly expenditure projection per quarter are shown in Figure 2. The allocation costs per task is shown in Table 1.

TABLE 1
Allocation of Costs by Task

Task No.	Task Description	GCID Labor (\$)	Travel (\$)	Consultants (\$)	Construction (\$)	Total Costs (\$)	Required Funds (\$)
1	Feasibility Study	26,000	2,000	198,000		226,000	200,000
2	Design	281,000	22,000	2,138,000		2,441,000	2,160,000
3	Construction						
3a	Flow Measurement	254,000	20,000		1,930,000	2,204,000	1,950,000
3b	Check Structures	766,000	59,000		5,831,000	6,656,000	5,890,000
Total		1,327,000	103,000	2,336,000	7,761,000	11,527,000	10,200,000

C. Qualifications

1. Project Manager

O. L. “Van” Tenney, GCID General Manager

B.S., Engineering Mechanics

Van Tenney’s 31 years of experience includes 20 years managing utilities and irrigation districts. He has been responsible for customer service, personnel management, engineering operations, system maintenance, and construction of capital improvements. For the Maricopa-Stanfield Irrigation District he administered a \$100 million, 5-year capital improvement program to construct a water distribution system. For GCID, he is administering design of the permanent fish screening and river restoration facilities for the Main Pump Station in cooperation with state and federal agencies.

Van has participated in a variety of statewide groundwater and water transfer forums, including CALFED’s Water Transfer Advisory Group, CALFED’s Conjunctive Use Advisory Team and CALFED’s Ag Use Efficiency steering Committee. He is also the current Chairman of the Northern California Off-stream Storage Technical Advisory Committee, and a member of the Glenn County Water Advisory Committee.

Van implemented a major in-lieu recharge program while working for Maricopa-Stanfield Irrigation District in Arizona. This project involved the management of nearly 400 deep-water wells and the development of an inter-agency drought protection program for the cities of Phoenix and Tucson. He has also been involved in numerous water management issues with respect to the protection and enhancement of threatened and endangered species while at GCID.

2. External Cooperators

GCID is in partnership with all participants in the BWMP and would disseminate project information through these partnerships. The project is a recommendation of the BWMP and the Agreement and would potentially benefit all parties, thereby strengthening and promoting these partnerships. Formal partnerships have not been developed among the numerous potential benefactors of the project. Development of these partnerships would be part of the

implementation of the project. For example, for the development of a groundwater and Stony Creek surface supply, GCID will need to work closely with TCCA, the Orland Unit Water User's Association, Tehama and Glenn counties, Capay Rancho Water District, and the private landowners using groundwater supplies.

As noted elsewhere, previous GCID projects, particularly those that relate to habitat restoration such as the fish screening project and the refuge water supply project, have been partially funded by a variety of state and federal agencies. GCID has contributed millions of dollars of its own funds for these projects. GCID projects have had broad support among local, state, and federal agencies, local landowners and District customers, and other stakeholders, including conservation groups. Along with CDFG, USFWS, Reclamation, and DWR, it is anticipated that the project would receive local support, including Glenn and Colusa counties, Reclamation District 2047, Princeton-Codora-Glenn Irrigation District, Provident Irrigation District, and Maxwell Irrigation District. GCID fosters such support through effective public participation and outreach programs. Sites for the reservoirs and associated conveyance systems would be purchased or leased, as needed, from willing parties. The District's legal counsel, Somach, Simmons & Dunn, would address any project-related land ownership and water rights issues.

D. Benefits and Costs

1. Budget Justification

The estimated project cost is \$10,200,000, and the allocation of costs by task is shown above in Table 1. The budget costs as requested by CALFED is shown in Table 2, the Breakdown Worksheet.

2. Cost Sharing

GCID's participation in this project is estimated to be valued at \$1,327,000, approximately 13-percent of the total project costs. Additionally, GCID would assume all long-term operations and maintenance costs of the improved facilities in perpetuity. The costs incurred by the District are expected to be a part of the local cost share contribution. An estimated budgetary synopsis by task of GCID's labor costs is available in Table 1 under Section B-1 (Methods, Procedures, and Facilities).

3. Potential Benefits to be Realized and Information to be Gained

Water Supply Benefits

The viable water supply benefits under this program would be derived from the increased efficiency of the GCID delivery system. The District estimates that a reasonably monitored delivery and drainage system could be instrumental in avoiding up to 40,000 ac-ft of operational spills annually through improved management of existing supplies. GCID Main Canal spills, combined with Colusa Basin Drain flows, can range from 100 cfs to 2,000 cfs weekly. Managing and controlling flow fluctuation could yield flow benefits of hundreds of acre-feet daily. This could directly translate into reduced surface water diversions and subsequently into increased in-stream Sacramento River flows. This additional supply could assist in meeting in-basin and/or out-of-basin needs.

TABLE 2
Budget Summary

		Present Value	Requested Funds	
Item		(\$)	(\$)	Description and Justification
(a)	Direct Labor Hours	\$0	\$0	Not applicable—Work for this feasibility shall be contracted out to consultants; GCID participation is part of the District's cost share
(b)	Salaries	\$0	\$0	Not applicable—Work for this feasibility shall be contracted out to consultants; GCID participation is part of the District's cost share
(c)	Benefits	\$0	\$0	Not applicable—Work for this feasibility shall be contracted out to consultants; GCID participation is part of the District's cost share
(d)	Travel	\$0	\$0	Not applicable—Work for this feasibility shall be contracted out to consultants; GCID participation is part of the District's cost share
(e)	Supplies and Expendables	\$0	\$0	Not applicable—Work for this feasibility shall be contracted out to consultants; GCID participation is part of the District's cost share
(f)	Services or Consultants	\$2,239,000	\$2,239,000	Engineering services shall be provided by consultants. Initial stages of the study are underway, but require additional funding to proceed.
(g)	Equipment	\$0	\$0	
	Sub-total (a-g)	\$2,239,000	\$2,239,000	
(h)	Other Direct Costs			
	Construction	\$7,761,000	\$7,761,000	
	Review	\$50,000	\$50,000	Engineering services shall be provided by consultants.
	Right-of-Way/Legal	\$150,000	\$150,000	Legal and Right-of-Way consultations shall be provided by GCID's attorney, Somach, Simmons & Dunn
	Sub-total (h)	\$7,961,000	\$7,961,000	
(i)	Total Direct Cost	\$10,200,000	\$10,200,000	
(j)	Indirect Costs	\$0	\$0	Not applicable—Work for this feasibility shall be contracted out to consultants; GCID participation is part of the District's cost share
(k)	Total Costs	\$2,439,000	\$2,439,000	

Water Management Benefits

Water management benefits include:

- **System Efficiency**—The most significant benefit and predominant goal of the project is increased system efficiency, or more specifically, water use efficiency. The measurement of GCID's delivery and drainage system flows would substantially improve the District's ability to more efficiently utilize their supply. The monitoring network would enable District staff to micromanage water delivery. The flow measurement structures and system would be used to analyze flow patterns to support operation decisions to manage flow. Measurement and tracking of system flows add a necessary dimension to the management of water supply by allowing the owner to more accurately define its water use. Further, the automation of GCID's Main Canal would substantially contribute to the District's efficient use of their supply. The automated check structures would enable District staff to micromanage water delivery and prevent the majority of the inevitable operational spills that are often associated with flashboard structures.
- **System Automation**—The new measurement devices could be incorporated with ongoing efforts by the District to automate the Main Canal. Flow measurement would allow GCID to maximize the use of automated structures, increasing its ability to manage system flows.
- **System Flow Measurement**—The new structures could be incorporated with ongoing District efforts to more accurately define their system flows and outflows. Measurement and tracking of system flows add a necessary dimension to the management of water supply by allowing the owner to more accurately define its water use.
- **GCID Operations**—The District would not sacrifice flexibility of delivery with additional structures or with construction. The District would be able to increase (and monitor) the dynamic head of the system, which could be used to provide temporary relief during an energy shortage. Less maintenance would be required because of automation and off-site controls. Also, the level of safety is increased for operational and maintenance staff. Flashboard structures can be extremely dangerous. Maintenance would be minimized through off-site controls and telemetry.

Environmental Benefits

As GCID's primary source of supply, the Sacramento River would be directly and most beneficially influenced by the District's efficient use of its water supply. The environmental benefits associated with this project would be quantified throughout the various stages of the project, from feasibility study through final design. Some environmental benefits that have been identified at this level of investigation include:

- **Sacramento-San Joaquin Delta/Downstream Water Purveyors**—The decrease in surface water diversions has the potential for increasing available seasonal in-stream flows to the Delta. The District's decreased diversions, an estimated 40,000 ac-ft per year, is a quantifiable number that directly reflects the potential increased available supply in the Sacramento River.

- **Aquatic/Riparian Habitat**—Improved in-stream flows would generate expected fisheries benefits, both in terms of water quality and sheer volume of water. Further, the reduced tailwater flows could potentially reduce straying of fish into the Colusa Basin Drain at Knights Landing by reducing attraction flows for salmonids.

Water Quality Benefits

Water quality benefits of the project would generally stem from the increased in-stream flows. Improvements to both temperature and constituent properties of the river would be the most probable results of the increased flows. These benefits would need to be evaluated and modeled on a regional basis to determine impacts on water quality in the Sacramento River and the Delta.

4. Benefit Realized and Information Gained versus Costs

Water supply benefits potentially could be on the order of 40,000 acre-feet per year (ac-ft/yr), as mentioned above. A \$10,200,000 system improvement project could yield a project with potentially far-reaching water supply, water management, water quality, and environmental benefits (as discussed above).

E. Outreach, Community Involvement, and Acceptance

The project is an outgrowth of the Sacramento Valley Water Management Agreement among the Sacramento Valley water users, the California Department of Water Resources, the U.S. Bureau of Reclamation, and export water users. The ongoing process that resulted in the Agreement has a strong public outreach component to inform agencies, environmental and other interests, and the public on the Agreement. Numerous presentations have been made to the CALFED Management Team and associated staff, county supervisors in all affected counties, water districts and their customers, and other organizations and agencies, including the State Water Resources Control Board, Trust for Public Lands, The Bay Institute, U.S. Fish and Wildlife Service, Natural Heritage Institute, The Nature Conservancy, and the public. Additional meetings will occur as the planning and implementation process proceeds. No individual or organization has expressed formal opposition to the Agreement or the projects to be undertaken under the Agreement. The projects, including the one described herein, have been summarized in a published “Short-term Workplan” prepared in conjunction with the Agreement.

Additionally, if they prove to be feasible and are selected for implementation, this and all other capital outlay projects associated with the Agreement will be subject to CEQA and NEPA documentation. The CEQA and NEPA statutes and implementing guidelines ensure that the public and all affected agencies will be fully informed of the project and its effects and receive meaningful opportunities to provide input and review and comment on the project through the CEQA and NEPA public review process.

The project does not directly involve training, employment, or capacity building, but through more efficient agricultural water supply management, it potentially makes more water available for beneficial uses. A better managed water supply will help sustain the gains being made in the northern California economy by accommodating growth in industry and agriculture, providing growth in employment opportunities in all economic sectors.

The project files would be stored at GCID's office. A website would be established for the project, affording access of information to all parties. The website would maintain an updated project schedule, dates of upcoming meetings, minutes of meetings, and other project information.

Letters of Support

Land Use Checklist
